DOCUMENT RESUME

ED 188 132 CS 005 493

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TITLE An Examination and Comparison of Selected Cohesive Features Found in Child-Produced Texts and Beginning Reading Materials.
PUB DATE 79
NOTE 35p.; Research prepared at Georgia State University.

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Basal Reading; *Beginning Reading; *Child Language; Discourse Analysis; *Language Research; Language Skills; *Language Usage; Primary Education; *Readability; Reading Comprehension; *Reading Materials; Reading Research
IDENTIFIERS *Cohesion

ABSTRACT

A study was undertaken to investigate the nature of the cohesive features found in the language of selected first grade students and to study and compare the cohesive features of language samples in the beginning level of three widely used reading series to those found in the language of the children for whom they are intended. In the first part of the study, language samples were obtained from six first grade students. Each student participated in a total of six language situations developed to elicit a wide variety of language use. From the language produced, 36 samples were drawn to form an information base for the study. For the second part of the study, selections from the Scott, Foresman Basics in Reading; Houghton-Mifflin Reading Series; and Ginn Reading 720 series were analyzed to determine the nature and occurrence of the cohesive ties used. This data, together with the data collected in the first part of the study, were used to compare the presence and frequency of occurrence of cohesive features in the child-produced texts and in the language samples of the beginning reading series. The study provided evidence of the applicability of a framework of cohesive analysis for gathering information about the textual schema of children and suggested the presence of cohesive ties in children's langauge. The study also established the use of cohesive ties in three beginning reading series. (FI)

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AN EXAMINATION AND COMPARISON OF SELECTED COHESIVE FEATURES FOUND IN CHILD-PRODUCED TEXTS AND BEGINNING READING MATERIALS

Marianne Daniels Garber

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Introduction

Comprehension, as the goal of the reading task, has always been of interest to reading educators. It has been assumed, through the years, that simplification of the language in reading texts eases the reader's meaning-getting task. As a corollary of this proposition, it was assumed that comprehension difficulty escalates in proportion to increased language complexity. Therefore, to ease the beginning reader's task, words, sentences, words per sentence, and T-units in selections are often carefully counted and compared to formulae predictions in order to control the difficulty level of reading materials. The vocabulary used in reading selections is subjected to considerations of the frequency of usage in the oral language of children. Syntactic patterns utilized often follow a subject-verb-object pattern with emphasis on simple internal structure. Each of these factors is assumed to contribute to the simplicity of language used in the reading materials for beginning readers and thereby ease the meaning-getting task of the novice reader.

There is, however, evidence that increased language simplicity, especially in terms of syntactic structure, may not ease the comprehension task of readers (Pearson, 1974-75). Information concerning features of language texts other than the relative difficulty of the vocabulary, sentence length, or T-units is needed. There has been little study of the actual characteristics and nature of the language features children use to create unified, meaningful texts. In addition, there is a need to analyze reading materials for features other than those accounted for by readability formulae. While there is an increasing interest in factors that affect the interpretation and recall of discourse (Meyer,

1977; Schank, 1975; Kintsch, 1974), these works are concerned with episodal and/or propositional structure of a written text, and most often relate to materials beyond the beginning level of reading difficulty. There is a need to begin to describe features underlying the hierarchical outline proposed by discourse analysts. There is a need to begin to describe what might be termed the semantic features of meaning flow in the language of texts, regardless of the level of difficulty.

While it seems clear that there is a relationship between syntactic structure and comprehension, what is unclear is the nature of the relationship (Cunningham, 1976). It is not at all clear that syntactical complexity, per se, automatically increases the difficulty of comprehension in a reading selection. There are factors in the reader as well as in the text that complicate and prevent such assertions. Over a decade ago, the work of Strickland (1962) and Ruddell (1965) indicated that reading comprehension is a function of the similarlity of the language structure patterns in the reading material to oral patterns of language structure used by the children. Language simplicity cannot be solely a function of syntactic structure; semantic factors must also play a role. Conceptual complexity has been suggested as a contributor to reading difficulty (Tierney & Vaughan, 1976). Kintsch (1974) has entertained the notion of "idea density" as a possible index of reading difficulty. In this matter, he has suggested that the number of propositions in a text base may be regarded as a crude measure of the content information in a text.

While the work done at such a content level is of great importance, the factors described are at a semantic level which is directly affected by the particular content and form of the text. Discourse structure will reflect discourse form. Conceptual difficulty is a reflection of the abstractness of the topic. However, there are features of language which allow the meaning to flow through a selection such that the effort becomes a united whole, or a text.

These are features of cohesion, characteristic of texts and not found in isolated words or sentences (Halliday & Hasan, 1976). These "textural" features, those that distinguish a text from something that is not a text, develop continuity in meaning such that a cohesive unit is formed. Furthermore, it is possible that one factor that complicates the comprehensibility of a written selection is the nature of the cohesive features binding it.

One goal of this study is to gather information concerning the distribution and use of cohesive features in texts. More specifically, the purpose of this investigation is to gather information concerning the features of cohesion incorporated into child-produced discourse and written discourse used in beginning reading materials.

In simplifying the vocabulary and syntactic structure of beginning reading materials, have textbook writers omitted consideration of textural features whose presence in a text threads the intended meaning throughout the material in such a way that the reader has more "clues" and the reading task is simplified? What kind of "semantic" features of text do young children use and have knowledge of? Do reading textbook developers incorporate the features children use in the same degree into the commercially produced stories?

Background

In the sixties, the grammatical structure of language became of prime concern to reading researchers and linguists alike. Emanating from the theories of Noam Chomsky (1957, 1965), many researchers, including Gough (1965), Fagan (1971), Savin and Perchoneck (1973), and Richek (1976) found credence in the notion that the syntactical complexity of language influenced and made more difficult the language processing task of the reader.

While the derivational theory of complexity implied and emphasized syntactic relations and analyses as the key to comprehension, much of the research

undertaken in the seventies led to speculation that the simplification of language does not ease the comprehension task. Based upon the work of Bransford and Johnson (1972), Franks and Bransford (1974), and Pearson (1974-75), it appears that set or knowledge the reader brings to the reading task, as well as the primacy of semantic relations in memory, affect comprehension. Increased grammatical complexity does not automatically demand increased difficulty in comprehension.

Schema theory is one means of discussing the sorts of information the reader or learner brings to a reading situation. This theory emphasizes the role of what is already known in acquiring new information (Schank, 1975). It supports the notion that an individual's store of knowledge provides a framework upon which everything else is viewed, assimilated, or accommodated. Meyer (1974) likens schemata to cognitive templates or patterns. They have variables that can be filled with specific content, and a reader approaches a story with a particular "narrative schema" in mind. Recall becomes a reconstructive process, in which an adequate schema or schemata from a person's memory are identified and employed.

It is a relatively easy task to discern a reader's previous knowledge of a topic so as to determine his familiarity with the content to be presented, and if necessary to prepare him for the reading task. At the same time, while readers bring varying "content" schemata to the reading task, perhaps there are constants in the "text" schemata they bring to the task. In other words, the question must be asked, what do young children know about the incorporation of a message into discourse? Are there understandings of text-formation properties that young children inherently possess, but which text developers do not use in reading materials?

In Cohesion in English, M. A. K. Halliday and Ruqaiya Hasan (1976) have developed a theory of the cohesive features of a text. They present a framework

for discussing the incorporation of a message into language through the use of semantic relations expressed in a text. When a speaker of English hears or reads a passage of language more than one sentence in length, he can usually decide whether the sentences compose a whole unit, a text, or whether they are unrelated sentences.

A "text" is best regarded as a semantic unit, a unit not of form but of meaning. A text typically extends beyond the range of structural relations, so that cohesion within a text, or texture, is dependent upon something other than structure. "Cohesion" is a semantic relation; in fact, it is a relational concept, for it is not the presence of a particular class of item that is cohesive, but the relation between one item and another in the text. Halliday and Hasan present five major areas of cohesive relations: reference, substitution, ellipsis, conjunction, and lexical cohesion. All of these serve as signals that interpretation of a passage depends on something else. The meaning of one element is dependent on the presuppositions of another. The direction of the relationship may be anaphoric, pointing back to some previous item, or it may be cataphoric, with the presupposed element following the item to which it is tied. The one further possibility is that the information required for interpreting one item in the text is found not in the text but in the situation. This type of reference, called exophora, is not cohesive in the terms of Halliday and Hasan (1976), since it does not bind two elements together into a text.

Halliday and Hasan define cohesion as "the set of possibilities that exist in language for making text hang together: the potential that the speaker or writer has at his disposal" (1976, p. 19). This study is an investigation into that potential.

The Study

Purpose

The present study has two purposes. The first purpose of this study is to investigate the nature of the cohesive features found in the language of selected first graders. Language samples produced by six-year-old children for three different purposes were analyzed according to a framework based on that developed by Halliday and Hasan (1976).

The second purpose of this study is to study and compare the cohesive features of language samples found in the beginning level of three widely used instructional reading series to those found in the language of children for whom the books are intended.

Oral and written language samples reflecting child and commercial production were the focus of a detailed analysis of selected textural variables. Through such an analysis it was possible to ascertain the nature and complexity of the cohesive features children naturally use in written and oral text production. While contextual aspects of reading ability are acknowledged as extremely important to the reading process, relatively few attempts have been made to look at factors beyond sentences in isolation (Fleming & Ohmack, 1977). This study will look at some of the features of language operating between and among sentences which serve as a binding force in the creation of texts by children and the authors of reading textbooks.

The two investigations undertaken in the present research were directed at answering the following research questions.

Investigation I

1. What information about text formation capabilities is shown in the number and variety of types of cohesive features the children utilize in written and oral text development?
2. Which cohesive features are found in the language samples produced by selected six-year-old children?

3. What is the frequency of occurrence of these features in the child-produced language samples studied?

4. Do the child-produced language samples differ significantly from each other because of situational or child-related characteristics, in the presence and occurrence of the cohesive features of substitution, conjunction, ellipsis, lexical relations, and reference?

Investigation II

1. What cohesive features are found in the language of three widely used beginning reading textbooks?

2. What is the frequency of occurrence of the selected cohesive features analyzed in each basal series text?

3. Does the presence and frequency of each type of cohesive feature studied differ among the basal reader series?

4. Do the child-produced language samples in Investigation I and the language samples of the beginning reading materials in Investigation II differ significantly in the presence and occurrence of each type of cohesive feature analyzed?

Methodology

Investigation I

Samples. The language samples on which this study is based were drawn from six children, three boys and three girls, during the summer prior to their entrance into first grade at a suburban elementary school in [redacted]. A certified reading specialist in the school was asked to select nine girls and nine boys who represented the same approximate middle-class socioeconomic background and who spoke English as their native language. Ultimately, six study participants who fit the following criteria were chosen from the initial 18 identified. The children had the same kindergarten experience and had been judged to be able to succeed in the first grade reading program based on their performance on the county kindergarten checklist given by the school in the spring prior to this investigation. The children, of appropriate first grade age, were of at least average intelligence with no apparent language problems.

Each of the selected six children participated in a total of six language situations developed to elicit a wide variety of language use. From the language produced in these situations, 36 samples were drawn to form the information base from which the data of this investigation were collected. An experienced primary teacher other than the experimenter conducted the stimulus situations.

Stimulus Situation I. The first situation involved the oral discussion of a stimulus picture selected to promote story development. A picture selected from the Children's Apperception Test (Bellak, 1974) was used to elicit the language samples.

On a one-to-one basis, each child was presented with the same stimulus picture. Discussion between the teacher and subject was initiated through the use of three main questions: (1) What do you think is happening in this picture? (2) What do you think happened before this event? (3) What do you think will happen next? The oral discussion was taped for later transcription and analysis.

Stimulus Situation II. The oral discussion developed in Situation I served as the immediate stimulus event for the development of an individual language experience story. Following the oral discussion, it was suggested by the teacher that she write his story about the picture for him. The child was told that the teacher would write on large chart paper exactly what the child dictated. According to accepted procedures for the language experience approach, the story was dictated to and written by the teacher (Hall, 1976).

Stimulus Situations III and IV. These situations involved replication of the procedures developed in Situations I and II, using a different picture selected from the Children's Apperception Test (Bellak, 1974). This data collection occurred on a day separate from the development of the first discussion and story.

Stimulus Situation V. An experimental setting was utilized to control an exercise in referential communication of the type utilized by Glucksberg, Krauss, and Weisberg (1966). Each child was asked to explain to the primary teacher about a tower of blocks the child had built. Each child was given six novel forms similar to those used by Glucksberg, Krauss, and Weisberg (1966). The materials and procedures utilized in this situation conformed to those outlined in the original experiment.

The experimental task was introduced as a game, the object of which was to build two matching towers of blocks. Since the teacher could not see what the child was building, the child had to describe each block as it was stacked, so that the teacher could select the appropriate block from her set. After all six blocks were stacked, the towers were compared by the participants. The experimental sessions were tape recorded and transcribed verbatim for later analysis.

Situation VI. This situation involved a replication of Situation V, although the predetermined order of the blocks was different.

The teacher worked individually with each child in four separate sessions. The children were told prior to the sessions that they would help the experimenter with some school work by talking and playing with the teacher.

Data Collection

The text samples were transcribed for analysis from tape recordings when appropriate. Samples developed from the language experience stories in Stimulus Situations II and IV were taken from their original dictated form. The oral language texts developed in Stimulus Situation I and its replication, Stimulus Situation II, as well as the child's oral instructions to the teacher in the experiments in referential communication, Stimulus Situations V and VI, were tape recorded and later transcribed by the experimenter. Each of the 36 language samples was analyzed according to a framework based on that developed by Halliday and Hasan (1976).

Although Halliday and Hasan do not include first and second person or exophoric references in their framework, these items were of interest in the present study. Since one of the purposes of this research was to identify the range of cohesive ties used by children and textbook writers, the cohesive framework was extended to include not only first and second person pronominals but also those ties whose presumed item is found in the context of situation.

Sentence fragments were treated as though they were sentences; each sentence or sentence fragment in the sample was numbered for identification and analysis (Morgan, 1973). The sentences were analyzed according to the following areas of interest: (1) number of cohesive ties in the sentence; (2) cohesive items; (3) type; (4) distance from presupposed item; and (5) presupposed item. To facilitate comparison and verification of data, a standard form was used for these purposes. Accuracy checks were made on a systematic basis by two independent raters trained to do the cohesive analysis.

In order to provide a means of comparing the collected data for each child, summative information was calculated based on the cohesive ties found in the first "x" number of sentences of each sample. The x factor was determined based on the number of sentences found in the shortest sample for each situation type. The following summative data were calculated: (1) average number of cohesive ties per sentence; (2) average sentence-length in words; (3) percentage of ties involving presupposed items in immediately preceding sentences; (4) percentage of ties involving presupposed items in remote sentences; (5) percentage of ties whose presupposed item is in the context of situation; (6) percentage of lexical type ties; (7) percentage of substitution type ties; (8) percentage of elliptical type ties; (9) percentage of conjunctive type ties; and (10) percentage of reference type ties.

Investigation II

Samples. The language texts and data collected in Investigation I served as the child-produced language samples for Investigation II. In addition, a total of nine representative samples selected from three basal series widely used in the Metropolitan Atlanta area, Scott, Foresman Basics in Reading, Houghton-Mifflin Reading Series, and Ginn Reading 720, were used. As is usually done in readability evaluation, three story selections not greater than 200 words each were taken from the beginning, middle, and end of each beginning level basal.

Data from these language samples was collected according to the same procedures developed in Investigation I. Summative data for each textbook selection was evaluated based on the cohesive ties found in the first "x" number of sentences in each sample. The number x corresponded to the least number of sentences found in any one of the nine samples selected. The characteristics of cohesion of the commercially produced series and child-produced texts were analyzed.

In order to provide information needed to make a comparison of the child-produced and commercially produced language samples of this study, the collected data were pooled for each language variable to develop child-language means and basal-language means.

Data Analysis

The data provided descriptive information concerning the nature of the cohesive ties used by six-year-old beginning readers in various situations, as well as that incorporated into the language used in the beginning basal readers studied.

Statistics. Descriptive statistics were calculated for each of the dependent variables representing the cohesive features and other characteristics of

the language which form the focus of these investigations. Analyses of variance were conducted to investigate situational and child effects on each measure in Investigation I. The independent variables with their associated number of levels were: sex (3), replications (2), and situation (3). An additional analysis of variance was conducted which included the independent variable cohesive ties with five levels representing the different types of ties. Such analyses also compared the pattern of the dependent variables in child-produced texts. t-tests done on the summative means were calculated for child-produced and commercially produced language in Investigation II to see if there was a significant difference in the frequency of occurrence of textural features found in the language of children as compared to those found in the beginning reading textbooks.

Results

Eight research questions were posed as the basis of this study. Four questions served as the focus of Investigation I and four questions were the focus of Investigation II.

Analysis of Data for Child Language Samples

Investigation I was designed to study the number, variety, and frequency of occurrence of cohesive ties in the oral language texts of six children who would be entering first grade in September. The language of the six children in six situations formed the 36 language samples which served as the data base for this research. The number of sentences for each sample ranged from a minimum of 6 for a language experience story to 55 for one of the block situations. An x factor based on the shortest selection for each situation became the determiner for the number of sentences to be analyzed from a selection. For example, since the shortest language sample for Oral Story 1 was eight sentences long, eight became the x factor for the analysis of the first oral story selections.

Each of the 36 language samples was analyzed for number and types of cohesive ties. An expanded cohesive framework based on that developed by Halliday and Hasan (1976) was used to complete the cohesive analysis. Summary sheets for each language sample were developed from the coding analysis. The results of the coding procedure and the compilation of data taken from the child language samples indicated that each of the six children used all five types of cohesive ties in his/her language during the six situations. The frequency with which the ties occurred varied from child to child and situation to situation.

Analyses of variance provided information about the nature and occurrence of cohesive ties in the child language sample. The independent variables and their associated levels were Sex (S), two levels; Child nested within Sex (C/S), three levels; Replication (R), two levels; and Situation (A), three levels. Eleven dependent variables were included in the analysis of variance: (1) number of sentences in selection; (2) average number of words per sentence for whole selection; (3) average number of ties per sentence for the whole selection; (4) average number of ties per x sentences; (5) percentage of ties with remote presupposition; (6) percentage of ties with exophoric presupposition; (7) percentage of lexical ties; (8) percentage of substitution ties; (9) percentage of elliptical ties; (10) percentage of conjunction ties; and (11) percentage of reference ties.

As indicated by the ANOVA, the number of sentences in a language sample was significantly related to the situation for which it was elicited. A main effect for Situation was significant with an F-value of 927.39. An interaction between Child within Sex (C/S) and Situation (A) was significant at the .01 level with an F of 11.96 calculated. While Sex (S) alone did not prove to be a significant main effect, the Child/Sex (C/S) and Situation (A) interaction was a significant influence on sentence production.

Neither Child/Sex nor situation had a significant effect on the average number of words in the $\underline{x}$ sample sentences. The range of average sentence lengths was from 5.45 to 13.3 words. Little difference in the average number of ties per sentence for the language samples was found whether means were calculated for the entire passage or the $\underline{x}$ portion.

The average number of cohesive ties found in a sentence was not found to be related to child (C/S) or situational effects. The relationship between the cohesive item and its presupposition, whether the tie was one across sentences or to the situation of context, was measured. The statistical analyses for these two variables indicated that the interaction between child by sex and situation (A) was significant at the .05 level with an $\underline{F}$ of 3.60 for the use of remote ties, whereas Child/Sex with an $\underline{F}$ of 8.65 was a source of variation at the .05 level for exophoric presupposition. Individual differences among children, then, appear to be related to a child's use of cohesive items which only gain their meaning by reference to the immediate situation.

While the child language samples for stories showed a percentage of occurrence of less than ten for any boy or girl, the use of exophora was much higher within the block situation. The situation mean for exophoric ties for the block experiment was 21.3 for girls and 32.0 for boys. The block situation was included in the present study to promote the occurrence of exophoric ties. Thus, if the children were able to use these ties, the block stimulus situation would show evidence of such use. The data suggest that the children not only did produce exophoric ties but also that more ties appeared in block-situation language than in other situation samples.

The presence and occurrence of lexical ties in the child language samples was not significantly influenced by child or situational characteristics. However, the language sample analysis did show that these children used lexical

ties frequently in their language. The range of occurrence of lexical ties in the children's language was 18.5% to 32.5% for oral stories, 27.5% to 40% for blocks, and 12% to 41% for language experience stories.

Substitution and elliptical ties occurred infrequently in the child language samples. Percentage of substitution and elliptical ties ranged from 2.2% to 4.4%, indicating that children used these types of features to a much lesser degree than the other cohesive ties.

The grand means for the percentage of occurrence is 28.4% for lexical ties, 22.1% for conjunction ties, and 43.1% for reference ties. One possible conflicting factor which may influence results related to the percentage of the various ties in the language samples is the dependent relationship of the percentages. Since there were only five kinds of ties which accounted for all of the cohesive ties in the samples, the sum of the type percentages must be 100%. Again, situation (A) proved to be a significant source of variance for percentage of substitution as it was for conjunction and reference type ties. Child/Sex was a source of significant effect at the .05 level for elliptical ties.

The results of the analysis of the 11 dependent variables indicate all five types of cohesive ties were present in the child-produced language. The children in this study were able to produce cohesive texts and did use each type of tie to do so. The number of ties per sentence was not significantly related to child or situational characteristics. However, the amount and type of tie found in a language sample does appear to be affected by the nature of the situation in which the language was used. The block situation elicited examples of exophora not consistently found in the other language samples. The presence of exophoric and elliptical ties in the language samples also appeared to be related to individual differences among children.

As shown in Table 1, the analysis of variance in which the type of cohesive ties were defined as an independent variable with five levels (types) further emphasized these results. Both Ties (V) and the interaction between ties (V) and situation (A) were shown to be significant sources of variation at the .01 level. The frequency with which a particular type of tie occurs in the language of the children is shown to be related to situation of use. Lexical, substitution, and elliptical ties were found substantially more often in the block experiment texts than in either of the story situations.

Insert Table 1 Here

Analysis of Data for Examination and
Comparison of Book Language and Child Samples

For Investigation II, selections from three widely used basal series were analyzed to determine the nature and occurrence of the cohesive ties in these language samples. Language information about each selection was collected in the same manner as described in Investigation I. Summative data for each textbook selection was based upon the cohesive ties found in the first x sentences of text. The x factor for book selections, based upon the least number of sentences in any one selection, was 19. The results of the coding procedure were compiled to answer questions related to the type and frequency of occurrence of the cohesive features found in each basal series text.

The language texts and data collected in Investigation I together with information derived from Investigation II were used to compare the presence and frequency of occurrence of cohesive features in the child-produced texts and the language samples of the beginning reading materials. In order to present the pertinent information, an analysis of variance was conducted. Using a design parallel to the one developed for the child language samples in

Investigation I, books (B) with three levels and selections (S) with its accompanying three levels became the independent variables and the 11 topics related to the nature and amount of cohesive ties in the language were the dependent variables. The results of the analyses for the 11 variables is summarized in Table 2.

Insert Table 2 Here

The analysis of variance for number of sentences in a selection and average number of words for x sentences revealed no significant differences in these characteristics among the three series and their accompanying selections. Revealing the similarities among the three textbooks, the mean number of sentences per selection was 24, with the average number of sentences for particular series varying from 22 to 25.7 sentences.

The number of words per sentence indicated a range of words per sentence from 5.8 to 10.0, with the average number of words per sentence for each series being 6.5 for Scott Foresman, 8.7 for Houghton-Mifflin, and 7.4 for Ginn 720. As seen in the summary table, there appear to be no significant differences among books or selections in the occurrence of cohesive ties. Whether calculated for the entire selection or for the x sentences alone, the number of ties per sentence hover around 3.0, with grand means of 3.1 and 3.0.

The statistical analysis related to the percentage of ties with remote and exophoric presupposition reveal the predominance of the first type of tie and the scarcity of the latter. While more than half of the cohesive items found in any one of the nine samples were tied to presupposing items in a remote sentence, few, if any, items with an exophoric reference were found. Five selections were found to contain no examples of exophoric reference. However, each group of series selections contained at least one story which did include that type of cohesive feature.

In addition, the analysis of variance done for percentage of tie with remote or exophoric presupposition revealed no significant difference among books or selections for these variables.

The statistical analysis done for the last five dependent variables dealt with the presence and frequency of occurrence of the five kinds of ties in the book selections. Lexical ties, with book averages of 55.7, 66.0, and 62.0, were the most frequently found features in these language samples. Each of the series appear similar in this respect, since no significant differences were found among series or selections. On the other hand, examples of substitution type ties were not found in any of the selections taken from Houghton-Mifflin or Ginn 720; and only one of the language samples selected from Scott Foresman contained any substitution ties.

Elliptical ties are another type of infrequently found cohesive feature in these selections. The average for all selections for percentage of elliptical ties was 2.4%.

Once again, the infrequency of occurrence of certain ties must be considered when viewing the statistical results, although neither a particular book nor story selection proved to be a significant source of variance for the occurrence of these cohesive features.

Conjunction and reference type ties were found in these language selections. Conjunction ties occurred relatively infrequently throughout the nine samples, composing only 2.3%, 4.7%, and 3.7% of the total ties in the three series. Neither book nor selection means were found to vary significantly from each other.

Reference ties composed a large percentage of the total ties found in the book selections. The grand mean for reference ties was 32.6% of the ties found in any one selection. Again, though, the series and selections were not significantly different from each other in the presence and occurrence of reference type ties.

From these statistical studies, it can be seen that the series and selections within them appear similar in the quantities of the language features measured. When cohesive tie was defined as an independent variable in an analysis of variance, significant differences in the occurrence of a particular cohesive feature was found among the selections. The tie types varied in the percentage of total occurrence. However, this is not a conflicting finding. It simply means that the five types of ties did not occur in equal amounts in the same selection. Neither the particular series, the placement of a selection in a text, nor the selection itself appeared to influence the presence or amounts of the dependent variables. The book language samples were found to be relatively similar in the number of sentences per selection, number of words per sentence, and the number of cohesive ties per sentence. Although each type of tie was not found in every series, the analyses of variance did not reveal any significant differences among series.

The results of Investigation I revealed significant differences among child language samples with child nested within sex (C/S) and situation (A) as sources of variation. In effect, these findings indicate that the child language samples taken as a whole represent a wide range of cohesive features found in the language of these particular children. In order to determine whether there were any significant differences between book language and child language samples in the presence and occurrence of each type of cohesive feature, t-tests were conducted using the findings from Investigations I and II. As shown in Table 3, the results of this analysis reveal striking differences between the beginning reading texts and the child-produced texts in the nature and occurrence of cohesive features. Although the two sets of texts were not found to differ significantly in either number of sentences per selection or number of words per sentence, the number of cohesive ties were shown to differ significantly. When the average number of cohesive ties per

sentence was figured for the entire selection, the difference between means of 3.6 and 3.1 was significant at the .01 level. When the average was computed for the $\underline{x}$ number of sentences, the difference between means of 3.5 and 3.0 was significant at the .05 level. Not only are the number of cohesive ties different in the child and book language samples, but also the kind and frequency of occurrence of type were found to differ. The location of presupposing item for a cohesive bond was shown to be a significant source of difference between the book and child language. The language of the beginning reading texts contained significantly more ties with remote presupposition than did the child-produced language. A $\underline{t}$-test score of -8.763, significant at the .01 level, was yielded for these means. The children's language, though, was much richer in the use of exophoric reference than was the book language. The percentage of exophoric reference found in the children's language was in all likelihood the result of the forced description required for the experiment in referential communication which formed the basis of Situation II. In any case, the presence of exophoric reference in the child-produced texts is indicative of the language-producing capability of these six children.

Insert Table 3 Here

The presence and frequency of occurrence of four out of the five types of ties differed significantly between the child-produced texts and the beginning reader selections. Only the relatively small percentage of elliptical ties in either type of text was not found to be a source of significant difference. The disparity between mean scores for percentages of lexical, substitution, and conjunction type ties were each found to be significant at the .01 level, while the percentage of reference ties found in each sample was significant at the .05 level. The children in this study used many more personal pronouns

and demonstrative pronouns than were found in the textbook selections. The philosophical belief in the need for vocabulary repetition is probably a factor contributing to the extremely high level of lexical items in the beginning reading selections. Study of the language items composing the experimental texts appear to indicate that not only did the degree of occurrence of a particular type of tie differ between the child and book passages, but also the variety of ties composing a particular category differed. While lexical type ties formed a large percentage of the total cohesive ties found in either language sample, the children's language was richer in synonyms and collocation than was the book language.

Discussion, Implications, and Conclusions

The results of this study indicated that the length of the children's language samples was definitely related to the situation in which it was elicited. However, the average number of words per sentence within a sample and the average number of cohesive ties found in each of those sentences did not vary significantly. The average number of words in a child's sentence was eight and approximately three of those words were likely to be a cohesive tie. In response to one situation or another, every type of tie occurred somewhere in the language of these children.

However, the language of individual children or particular language samples developed in response to a stimulus were sometimes characterized by different types and amounts of ties. For example, Boy 2's language often contained substantially more exophoric ties than did that of his male peers. And the language of individual children differed in the amount of ellipsis which was found.

The results support the notion of individual differences among these children in their use of cohesive features. Sometimes the frequent occurrence

of a type of tie appeared to be related to what might be called a child's tendency to use certain textural features repeatedly. At other times, the purpose of the language influenced text development such that more of a particular tie type was found in all of the language samples for that situation. Thus, a greater number of conjunctive ties occurred during story-related situations than in the block experiment. In this case, the children's stories reflected an overuse of "and" and "then" to mark sequence, which may be symptomatic of immature language use. Language use related to the block experiment was characterized by more examples of exophora, ellipsis, and substitution than were other situational samples.

These results support a common notion that language follows language function and that as in many other areas there were individual differences among the children. The examination of cohesive features in these language samples indicates that while each of the children was able to develop a unified text in response to a particular stimulus, those texts were marked by differences in the type and occurrence of textural features. These language users have the potential to use any of the various cohesive features in their language. However, the actual use of a textural feature appears related to purpose or individual style.

Examination of Book Language Samples

Although every type of cohesive tie was not found in each of the nine basal selections studied, the three series appear to be very similar in terms of the cohesive features incorporated into the texts, regardless of philosophical orientation or pedagogical considerations. No doubt, the readability criteria used to develop the basal selections were very similar and, therefore, may have been a factor in these results.

Comparison of Child and Book Language Samples

When the set of child language samples was compared with the set from the books, significant differences were found. Although the number of sentences in a selection and the average number of words per sentence were similar for book and child language, the children used a significantly greater number of cohesive ties than did the book selections.

In addition, the type of ties composing the averages were often significantly different. With the exception of the occurrence of elliptical and substitution ties, the two sets of data were significantly different in the use of remote, exophoric, lexical, conjunction, and reference items. While the frequency of occurrence of elliptical ties was not a significant source of difference, the percentage of substitution ties found in the children's language and the book language were significantly different when all 36 child selections were considered.

Thus, neither the frequency of cohesive features in general nor the type of tie used are similar for the series and children's selections. In addition, the book samples are characterized by more remote ties than are those of the children. Conversely, the children's language, at least partially influenced by the nature of the block situation, evidenced greater use of exophoric reference than did the basals. The language of those children who were able to identify the abstract figures on the blocks as similar to real objects had less need to rely on exophoric reference in that situation than did the others. As a corollary to Piagetian theory, the ability to see the characteristics of abstract shapes as "wholes" similar to concrete objects may be related to the level of thinking that child has reached. This point calls for further research.

There are other ways in which the analysis of cohesion indicated differences between the two sets of language samples. While the book language

exemplified more examples of lexical ties than did the children's, subtler analysis indicated that the children's language contained more collocation and synonymy than did that of the basals. While reiteration appeared frequently in both sets of language, repetition of lexical items composed the greatest portion of lexical ties in the book language. Basal authors use repetition of vocabulary to insure additional word exposure. Yet, over-reliance on the same vocabulary items yields not only unnatural language but robs the language of subtlety of meaning and the child of exposure to new vocabulary. The above statement is not meant to imply that the use of reference items in language always results in better or clearer texts. The children's language is exemplified by the overuse of reference type ties.

It is clear from the previous discussion that an analysis of the cohesive features of language is possible. Moreover, such an analysis provides new information about language use. Reading is a constructive process, resolved not through template matching but, often, through more information being interpreted than is in the original (Bransford, Barclay, & Franks, 1972). Comprehension involves bringing the appropriate schemata to the printed page. The schema provides the framework upon which everything else is interpreted, assimilated, or accommodated. Thus, the knowledge a person brings to the reading task is crucial to comprehension.

The text itself, however, is also crucial to understanding. Readability research is based on the idea that there are factors within the text which contribute to comprehensibility and are reader-independent (Moe, 1979). However, it is unlikely that these factors can be manipulated to a degree which insures comprehension for all readers. The reader must bring the necessary knowledge to the task, for reading is a multifaceted interaction involving the reader's knowledge of the world, the word and, to a lesser degree, the text itself. In order to get meaning, the reader must process the structural underpinnings of a

piece, have some knowledge of the content, and understand the ways in which meaning is incorporated into the text. Because of his language performance and competence, a language user has a great deal of information about the latter.

In order to produce, through speaking or writing, a meaningful unit which communicates ideas, the language user must have some understanding not only of textual features but also of what has been termed the textural features of language. In order to be an effective communicator, it has been suggested that one must have developed a "textural" schema of the cohesive qualities of language. It has also been suggested that textural understanding may be crucial to comprehension and textural features may be crucial to the comprehensibility of materials. The present study has provided evidence of the applicability of a framework of cohesive analysis for gathering information about the textural schema of children; and the results of this study have suggested the presence of cohesive ties in children's language. The use of cohesive ties in three beginning basals has also been established. Furthermore, the similarities and differences between the frequency and occurrence of particular types of ties have been noted. However, the relationship between comprehension, comprehensibility, and cohesion must yet be explored. The present investigations were prerequisite to questions concerning the relationship of comprehension to textural understandings.

The true value of the present study lies in the implications for theory and research which have been suggested by the preceding discussion. Reading research and practice have been criticized for lacking a theoretical base; yet, much of the linguistic theory important to an understanding of the reading process and the comprehension process has not been fully utilized by reading professionals. The present study of textural features, as well as research in discourse analysis, suggests that there is a wealth of information which can be tapped as linguistic and reading theory are melded.

Several implications for research are suggested by the present work. This study is limited in its generalizability. More information needs to be gathered about the cohesive features found in the language of children of the same age as those in this study and developmentally across ages. The relationship between textural feature use and reading achievement needs exploration.

The incorporation of textural features in reading textbooks is also an area for study. The relationship between readability and the presence of textural features must be determined. Furthermore, research is needed into the relationship of reading comprehension and comprehensibility to the occurrence of cohesive features in language. Are certain patterns of cohesion easier to comprehend than others? What is the relationship between comprehensibility of material to the frequency of occurrence of particular types of features?

Finally, research is needed to provide reliability for the analysis of cohesive features used in these investigations. Many researchers need to use the framework to provide the wealth of data to validate this approach. The relationship between writing and reading ability can be further investigated through this analysis of cohesive features. How does the writing of good readers differ from that of poor readers in the use of cohesive features? Can an analysis of textural features in discourse provide a quantifiable measure of the quality of written composition?

At this time the implications of the present study for educational practice must be brief and speculative. However, once the reliability, generalizability, and validity of information gained through this approach has been established, then the implications which should follow could be quite important for the teaching of reading. Information about children's usage of textural features and the use of textural features in reading selections may lead to knowledge of discrepancies which block comprehension. With this information, instructional procedures and materials could be developed which remedy such problems.

Information about the comprehensibility of textural features and their relation to readability may lead to new instructional goals dealing with the teaching of these signposts to meaning.

In conclusion, the present study indicates the potential a cohesive analysis of language may have for providing understanding of the incorporation of meaning into texts. The framework for cohesive analysis used was shown to be an effective tool for gathering information about language. The true value of the present study lies in what is yet to be discovered—that is, the relationship between comprehension and cohesion.

Table 1

Analysis of Variance for Child Language

Independent Variable—Ties

Source	df	Error Term	MS	F
Sex (S)	1	R	.09	.25
Child/Sex (C/S)	4	CR/S	.06	.44
Situation (A)	2	RA	.15	.55
Ties (V)	4	RV	10512.63	521.08**
A x C/S	8	CRA/S	.26	1.38
S x A	2	SRA	.04	7.08
A x V	8	RAV	646.49	25.65**
S x V	4	SRV	35.24	.27
S x A x V	8	SRAV	8.43	.13
C/S x A x V x S	32	CRAV/S	80.48	1.07

*.05 level of significance

**.01 level of significance

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Table 2

ANOVA Summary for Books

Dependent Variable	Mean Square Books	Mean Square Error (BS)	F
1.	10.33	19.33	.53
2	3.51	2.80	1.25
3	.20	.82	2.38
4	.42	.78	5.32
5	.19	.64	.30
6	4.33	13.33	.33
7	81.44	51.78	1.57
8	.44	.44	1.00
9	12.44	2.44	5.09
10	4.11	5.28	.78
11	152.11	63.61	2.39

Note: df for both Books and Error (BS) was 2.

*.05 level of significance

**.01 level of significance

Table 3

t-test for Child Language and Book Language

Dependent Variable	Child (N=36)		Book (N=9)			
	$\bar{X}$	α	$\bar{X}$	α	df	t
1. Number of sentences	19.61	2.27	24.00	1.55	43	-1.60
2. Average number of words for x sentences	8.32	.32	7.54	.55	43	1.21
3. Average number of ties per sentence	3.59	.13	3.10	.11	43	2.91**
4. Average number of ties per x sentences	3.53	.15	3.00	.15	43	2.48*
5. Percentage with remote presupposition	39.56	1.49	61.89	2.07	43	-8.76**
6. Percentage with exophoric presupposition	13.31	2.29	1.67	1.03	43	4.63**
7. Percentage of lexical ties	28.44	1.85	61.22	3.19	43	-8.89**
8. Percentage of substitution ties	2.17	.55	.22	.22	43	3.26**
9. Percentage of elliptical ties	4.42	1.07	2.44	.75	43	1.51
10. Percentage of conjunction ties	22.08	1.63	3.56	.65	43	10.55**
11. Percentage of reference ties	43.06	2.14	32.56	3.53	43	2.55*

*.05 level of significance

**.01 level of significance

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